KOBRA

USER MANUAL

FOR MOLDS

MOLDS FOR THE PRODUCTION OF CONCRETE ELEMENTS

[incl. Installation Instructions for EG Machinery Directive 2006 | 42 | EG Annex VI for partly completed machinery]

VISION TO REALITY

MADE IN GERMANY

Product name | Identification | Order	refer to label on mold bottom and mold head
Production date	
Manufacturer	KOBRA FORMEN GMBH Plohnbachstr. 1 08485 Lengenfeld | Germany Fon: +49 [37606] 30 2-0 e-mail: service@kobragroup.com

LIST OF CONTENTS

[Deutsch]
[English]

LIST OF CONTENTS

1. IMPORTANT BASIC INFORMATION

The mold was constructed in accordance with applicable safety regulations. Hazards may however arise for the users, or damage to other property, when using the mold. Specific hazards may arise due to incorrect use of the mold. This user manual describes the safe use of the mold. In addition to this user manual, the rules for the particular operating site and its requirements must be adhered to in order to prevent accidents.

1.1 DELIVERY CONTENTS

The mold consists essentially of a mold bottom part and a tamper head. The mold parts are delivered on a shipping pallet, assembled and secured to prevent slipping. Adjacent parts, spare parts and draw plate may be included in addition to the basic components.

1.2 RESPONSIBILITIES

1.2.1 RESPONSIBILITIES OF THE MANUFACTURER

The mold is state of the art and ensures maximum safety, if operated as specified by the instructions and so long the intended use is maintained.

1.2.2 RESPONSIBILITIES OF THE OPERATOR

The operator shall ensure that:

- This user manual is always kept handy.
- The operating personnel has read and understood these instructions.
- The operating personnel is familiar with the basic regulations for industrial safety and accident prevention.
- The operating personnel has been briefed on the safe handling of the mold.

The operator must ensure in particular that:

- During risk assessment further hazards may be identified, posed by special working conditions at the operating site of the mold.
- In an operating procedure all further instructions and safety notes arising from the risk assessment have been summarized.

1.3 LEGAL NOTICE

Essential principles are given in the general business terms and conditions of KOBRA FORMEN GMBH.

1.4 DOCUMENTATION

1.4.1 CONTENTS AND STRUCTURE

This user manual does not replace the operating instruction of the stone manufacturing plant!

1.4.2 LABELLING SCHEMES FOR INTEGRATED TEXT AND FOR REFERENCES [CROSS-REFERENCES]

Cross-references marked with this symbol in the instruction

1.5 SERVICE ADDRESS

KOBRA FORMEN GMBH
Plohnbachstr. 1
08485 Lengenfeld/ Germany

2. SAFETY

2.1 CONVENTION FOR SAFETY NOTES

Hazard
[This sign warns of hazards that can case injury and | or property damage.]

Important note

Wear safety goggles

Wear foot protection

Wear protective gloves

Wear face shield

Wear head protection

2.2 USAGE ACCORDING TO INTENDED PURPOSE

The mold is to be used exclusively for the manufacture of concrete blocks, in a certain concrete block manufacturing plant. Correct use also includes following all notices in this operating instruction as well as the rules and notices of the operating instructions of the stone manufacturing plant.

Any other use is considered as non-intended use.

The manufacturer is not responsible for any damages resulting from improper or erroneous application.

2.2.1 OPERATIONAL AREA

The mold is an incomplete machine and is only suitable for a particular machine as a whole.

2.2.2 PERSONNEL REQUIREMENTS

The operator should be proficient in the language of the operating instructions, so that he may read and understand it independently.

The operator must be trained in the safe handling of the mold and be familiar with the basic regulations on workplace safety and accident prevention.

2.2.3 SAFETY-RELATED ENVIRONMENTAL CONDITIONS

This operating instruction contains important references to the certain use of the mold.

For safe installation and removal of the mold in each case, the operating instructions of the block manufacturing plant should be observed.

Furthermore, the rules and applicable operating and working instructions for the particular operating site and its requirements must be adhered to in order to prevent accidents.

Maintenance work may be carried out only by trained personnel.

2.2.4 SAFETY-RELATED INSTRUCTIONS FOR SPECIFIC LIFE STAGES

Connection conditions
The mold is especially built for a certain machine and may be exclusively installed into this machine.

Installation
The mold is a component of a stone fabrication plant.

- During all works, observe also the operating instruction of the stone fabrication plant, and the applicable regulations for accident prevention at the installation site.
- Integrate the mold into the machine in accordance with the operating instructions of the device manufacturer.
- Note the correct position of the mold, while doing so. [Face mix side | base mix side]
- To integrate the mold into the machine use only tools recommended by the machine/ device manufacturer.

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

Danger from materials and substances

- Forming oils can cause irritation.
- Observe the safety instructions of the manufacturer of the preservative used.
- Do not inhale the spray mist.
- Always wear protective gloves and goggles.

Danger from sharp edges

- Wear protective gloves during all works with the mold.

Danger by not adequately trained personnel

- You should work with the mold only when you have been instructed in the safe use and you have understood these user manual, as well as the operating instructions of the machine/ device manufacturer.
- Always observe the local safety regulations.

Operation

The mold is a component of a stone fabrication plant.

- During all works, observe also the operating instruction of the stone fabrication plant, and the applicable regulations for accident prevention at the installation site.
- Adjust the machine set-up as specified by the manufacturer of the block fabrication plant.

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

Danger from ejecting parts with compressed air

- When using the compressed air rods, concrete debris and other loose items may be launched from the mold.
- Always wear face protection and protective gloves.

Danger from ejecting parts with water

- When using the high-pressure cleaner, concrete debris and dirty water may be launched from the mold.
- Observe the safety instructions of the manufacturer of your high-pressure cleaner.
- Always wear face protection and protective gloves.

Danger by not adequately trained personnel

- You should work with the mold only when you have been instructed in the safe use and you have understood these user manual, as well as the operating instructions of the machine/ device manufacturer.
- Always observe the local safety regulations.

Disassembly

The mold is a component of a stone fabrication plant.

- Disassemble the mold in accordance with the operating instructions of the device manufacturer.
- **Use no water and no high-pressure cleaner to clean electrically heated plates.**
- **Use no acids or acidic cleaners.**
- After cleaning, preserve the mold with cleaning oil and forming oil.

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

Danger from materials and substances

- Forming oils can cause irritation.
- Observe the safety instructions of the manufacturer of the preservative used.
- Do not inhale the spray mist.
- Always wear protective gloves and goggles.

Danger from sharp edges

- Wear protective gloves during all works with the mold.

Danger from ejecting parts with compressed air

- When using the compressed air rods, concrete debris and other loose items may be launched from the mold.
- Always wear face protection and protective gloves.

Danger from ejecting parts with water

- When using the high-pressure cleaner, concrete debris and dirty water may be launched from the mold.
- Observe the safety instructions of the manufacturer of your high-pressure cleaner.
- Always wear face protection and protective gloves.

Danger by not adequately trained personnel

- You should work with the mold only when you have been instructed in the safe use and you have understood these user manual, as well as the operating instructions of the machine/ device manufacturer.
- Always observe the local safety regulations.

Disposal

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

Danger from slipping heavy objects

- Secure the mold during transportation to prevent slipping.

2.3 POSSIBLE MISUSE

The commissioning of the mold is forbidden until the stone fabrication plant in which this mold must be integrated or of which it constitutes a component, meets the provisions of all relevant directives.

Other possible misuses are:

- Setting improper machine parameters.
- Transporting the mold with unsuitable means of transport.
- The operation of the mold by not adequately trained personnel.

2.4 OBSERVANCE OF USER MANUAL

Observing the user manual is essential to the safe operation of the mold. The manufacturer accepts no liability for personal, property and/ or asset damage caused by non-observance of the user manual. Liability for material defects is excluded in such cases.

2.5 SAFETY LABELLING ON THE PRODUCT

Please note the special safety indications on the mold.

2.6 RESIDUAL HAZARDS AND PROTECTIVE MEASURES

When observing the instructions in this user manual, the operating instructions of the block fabrication plant, as well as when complying with all applicable regulations for the safe operation of the device, residual hazards may be excluded.

The mold is an incomplete machine and therefore an equipment component of a machine as a whole with individual dimensions and weights.

The type or design of the mold is printed on the label or on the signs located on the mold.

3. SPECIFICATIONS

3.1 BOLT CONNECTIONS AND THEIR TIGHTENING TORQUES

Pre-stressing forces and tightening torques for steel bolts

[Regular thread]

Measurment	pre-stressing forces [kN]					tightening torques [Nm]				
strength class	4.6	5.6	8.8	10.9	12.9	4.6	5.6	8.8	10.9	12.9
M 4 x 0,70	1,29	1,71	3,9	5,7	6,7	1,02	1,37	3,0	4,4	5,1
M 5 x 0,80	2,1	2,79	6,4	9,3	10,9	2,0	2,7	5,9	8,7	10
M 6 x 1,00	2,96	3,94	9	13,2	15,4	3,5	4,6	10	15	18
M 8 x 1,25	5,42	7,23	16,5	24,2	28,5	8,4	11	25	36	43
M 10 x 1,50	8,64	11,5	26	38,5	45	17	22	49	72	84
M 12 x 1,75	12,6	16,8	38,5	56	66	29	39	85	125	145
M 14 x 2,00	17,3	23,1	53	77	90	46	62	135	200	235
M 16 x 2,00	23,8	31,7	72	106	124	71	95	210	310	365
M 18 x 2,50	28,9	38,6	91	129	151	97	130	300	430	500
M 20 x 2,50	37,2	49,6	117	166	194	138	184	425	610	710
M 22 x 2,50	46,5	62	146	208	243	186	250	580	830	970
M 24 x 3,00	53,6	71,4	168	239	280	235	315	730	1050	1220
M 27 x 3,00	70,6	94,1	221	315	370	350	470	1100	1550	1800
M 30 x 3,50	85,7	114,5	270	385	450	475	635	1450	2100	2450
M 33 x 3,50	107	142,5	335	480	560	645	865	2000	2800	3400
M 36 x 4,00	125,5	167,5	395	560	680	1080	1440	2600	3700	4300
M 39 x 4,00	151	201	475	670	790	1330	1780	3400	4800	5600

Pre-stressing forces and tightening torques for steel bolts

[Fine thread]

Measurment	pre-stressing forces [kN]			tightening torques [Nm]		
strength class	8.8	10.9	12.9	8.8	10.9	12.9
M 8 x 1,00	18,1	26,5	31	27	40	47
M 10 x 1,25	28,5	41,5	48,5	54	79	93
M 12 x 1,25	43	64	74	96	140	165
M 12 x 1,50	40,5	60	70	92	135	155
M 14 x 1,50	58	86	100	150	220	260
M 16 x 1,50	79	116	136	230	340	390
M 18 x 1,50	106	152	177	350	490	580
M 20 x 1,50	134	191	224	480	690	800
M 22 x 1,50	166	236	275	640	920	1070
M 24 x 2,00	189	270	315	810	1160	1350
M 27 x 2,00	245	350	410	1190	1700	2000
M 30 x 2,00	309	440	515	1610	2300	2690

Safety elements, such as spring washers, self-lock nuts, and clamping and fitted bolts must be replaced after disassembly.

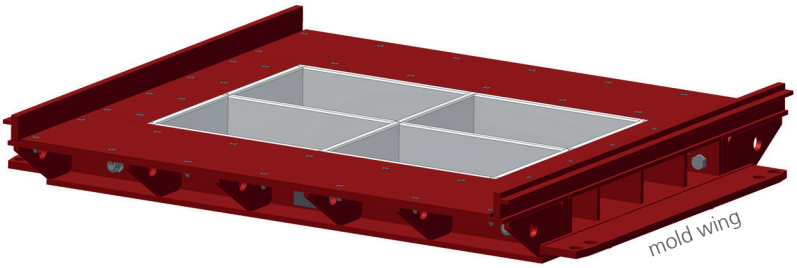
4. STRUCTURE AND FUNCTION

4.1 STRUCTURE

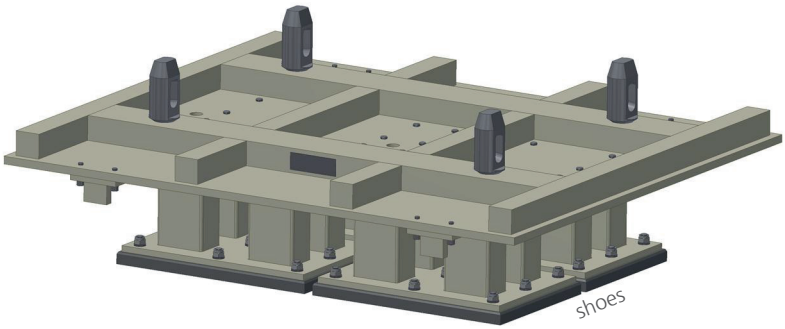
The mold described here is only designed for the production of concrete blocks in a special block fabrication plant and solely intended for industrial use.

4.1.1 MAIN COMPONENTS

The mold described here essentially consists of the mold bottom with the mold wing for attachment in the machine and the tamper head with compaction head and shoes.



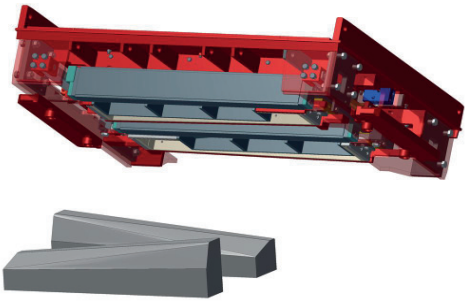
Picture: mold bottom with mold wing



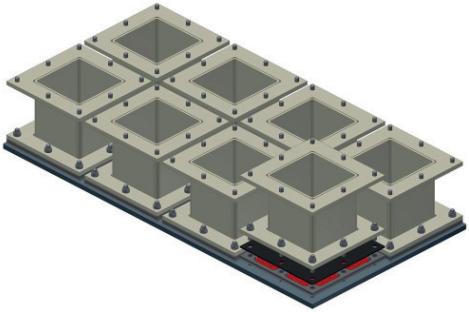
Picture: tamper head with shoes

4.2 FUNCTIONAL DESCRIPTION

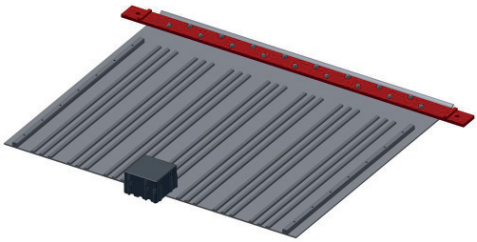
Special function such as draw plate, hydraulic mold, mold bottom or tamper head profiling, heated shoes.



Picture: hydraulic special mold for the manufacture of sloped curbstones



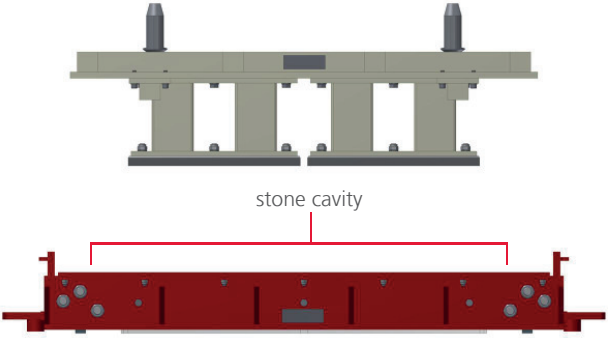
Picture: heated shoes for high-quality stone surfaces



Picture: draw plate for profiling the stone underside

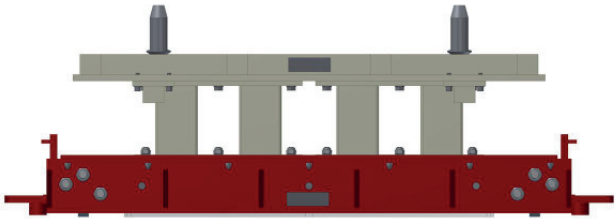
4.3 PROCEDURAL DESCRIPTION

- The earth-moist concrete is poured in the cavity of the mold bottom
- The concrete is compressed while vibration

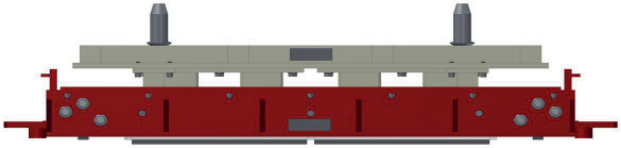


Picture: filling the cavity with concrete

- The stone surface is formed with the shoes and the stone is pushed out of the cavity during the mold lift up



Picture: compressing process



Picture: mold lift up

5. DELIVERY, INTERNAL TRANSPORT, UNPACKING

5.1 SAFETY

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

Danger from slipping heavy objects

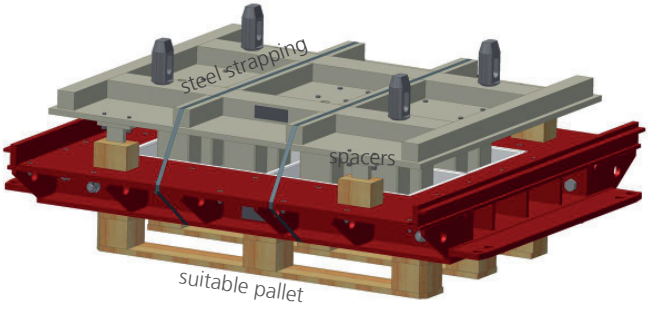
- Secure the mold during transportation to prevent slipping.

5.2 DELIVERY

The mold is delivered on a shipping pallet, assembled and secured to prevent slipping.

5.3 INTERNAL TRANSPORT

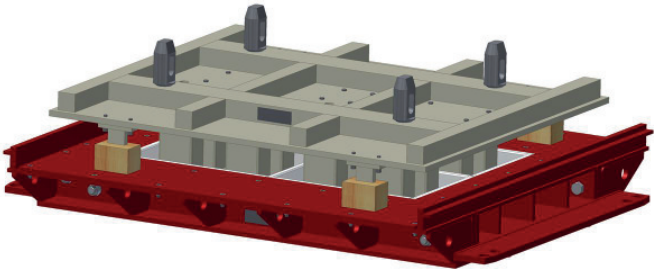
- Transport the mold only on a suitable shipping pallet. [see picture on page 21]
- Secure the mold to prevent slipping. [e.g. by straps or bands | see picture on page 21]
- Secure any loose parts lying on the mold.
- Use only suitable means of transport, which are designed for this load. [e.g. forklifts]
- To integrate the mold into the stone fabrication plant use only lifting gear and lifting means recommended by the manufacturer of the stone fabrication plant.



Picture: Delivery | Transport of mold bottom and tamper head exclusively on suitable pallet, including spacers | Securing the mold to prevent slipping

5.4 UNPACKING

- Remove the transport lock and spacers[1] [see picture below] between the bar spacer of the tamper head and the mold bottom only to integrate and operate the mold in the stone fabrication plant.
- After each use, insert these security elements again.



Picture: [1] Spacers between tamper head and mold bottom.

6. CONDITIONS OF STORAGE

6.1 SAFETY

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

Danger from materials and substances

- Forming oils can cause irritation.
- Observe the safety instructions of the manufacturer of the preservative used.
- Do not inhale the spray mist.
- Always wear protective gloves and goggles.

Danger from sharp edges

- Wear protective gloves during all works with the mold.

Danger from ejecting parts with compressed air

- When using the compressed air rods, concrete debris and other loose items may be launched from the mold.
- Always wear face protection and protective gloves.

Danger from ejecting parts with water

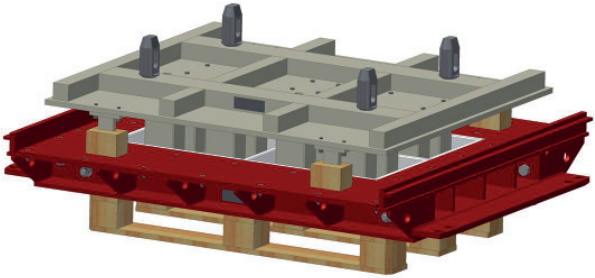
- When using the high-pressure cleaner, concrete debris and dirty water may be launched from the mold.
- Observe the safety instructions of the manufacturer of your high-pressure cleaner.
- Always wear face protection and protective gloves.

Danger by not adequately trained personnel

- You should work with the mold only when you have been instructed in the safe use and you have understood these user manual, as well as the operating instructions of the machine/ device manufacturer.
- Always observe the local safety regulations.

6.2 STORAGE

- Clean and preserve the mold before storing.
- Insert in each case the transport lock.
- Store the mold in a weather-protected area or a covered shelf [e.g. warehouse hall or covered shelf]



Picture: Storing the mold exclusively on suitable pallet

7. ASSEMBLY AND INSTALLATION, INITIAL COMMISSIONING

7.1 SAFETY

The mold is a component of a stone fabrication plant.

- During all works, observe also the operating instruction of the stone fabrication plant, and the applicable regulations for accident prevention at the installation site.
- Integrate the mold into the machine in accordance with the operating instructions of the device manufacturer.
- Note the correct position of the mold, while doing so. [Face mix side/ base mix side]
- To integrate the mold into the machine use only tools recommended by the machine/ device manufacturer.

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

Danger from materials and substances

- Forming oils can cause irritation.
- Observe the safety instructions of the manufacturer of the preservative used.
- Do not inhale the spray mist.
- Always wear protective gloves and goggles.

Danger from sharp edges

- Wear protective gloves during all works with the mold.

Danger by not adequately trained personnel

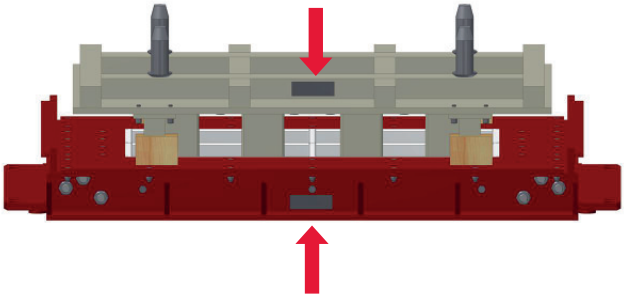
- You should work with the mold only when you have been instructed in the safe use and you have understood these user manual, as well as the operating instructions of the machine/ device manufacturer.
- Always observe the local safety regulations.

7.2 ASSEMBLY AND INSTALLATION

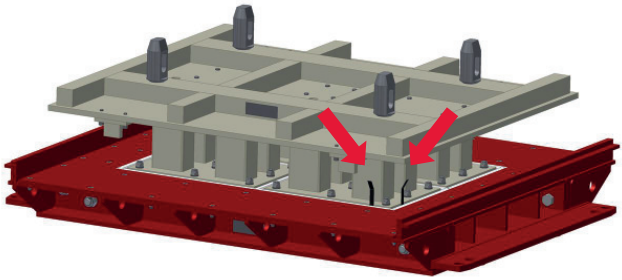
The mold is especially build for a certain machine and may be exclusively installed into this machine.

To integrate the mold proceed as follows:

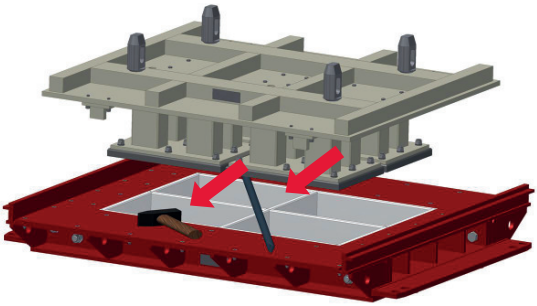
- Check also the alignment of the mold bottom and the tamper head to one another outside the machine.
- The alignment is correct when the type plate[1] of the tamper head and the type plate of the mold bottom point in the same direction. The type plate always marks the face mix side of the mold. [see picture on page 26]
- Integrate the mold into the machine in accordance with the operating instructions of the device manufacturer.
- Note the correct position of the mold, while doing so. [Face mix side/ base mix side]
- To integrate the mold into the machine use only tools recommended by the machine/ device manufacturer.
- Centre the tamper head and the mold bottom to each other.
- Check the centring by means of a feeler gauge[2]. [see picture on page 26]
- In order to prevent damage to the mold, do not carry out any shaking while empty.
- After installation and proper fastening of the mold, check again the position of the applied load to the mold. Use in addition a feeler gauge[2]. [see picture on page 21]
- Make sure that everything is installed properly. [see picture on page 26]



Picture: [1] The type plate of the tamper head and of the mold bottom must point in the same direction.



Picture: [2] check the centring by means of a feeler gauge.



Picture: Make sure that there are no foreign objects [e.g. hammer or crowbar] on the mold.

7.3 INITIAL COMMISSIONING

During the initial commissioning

- pay special attention to the accurate centring between tamper head and mold bottom [see picture on page 26]
- all relevant stone dimensions of the finished product must be checked

8. MAINTENANCE

8.1 SAFETY

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

Danger from slipping heavy objects

- Secure the mold during transportation to prevent slipping.

Danger from materials and substances

- Forming oils can cause irritation.
- Observe the safety instructions of the manufacturer of the preservative used.
- Do not inhale the spray mist.
- Always wear protective gloves and goggles.

Danger from sharp edges

- Wear protective gloves during all works with the mold.

Danger from ejecting parts with compressed air

- When using the compressed air rods, concrete debris and other loose items may be launched from the mold.
- Always wear face protection and protective gloves.

Danger from ejecting parts with water

- When using the high-pressure cleaner, concrete debris and dirty water may be launched from the mold.
- Observe the safety instructions of the manufacturer of your high-pressure cleaner.
- Always wear face protection and protective gloves.

Danger by not adequately trained personnel

- You should work with the mold only when you have been instructed in the safe use and you have understood these user manual, as well as the operating instructions of the machine/ device manufacturer.
- Always observe the local safety regulations.

8.2 SERVICE ADDRESS

KOBRA FORMEN GmbH
Plohnbachstr. 1
08485 Lengenfeld/ Germany

8.3 PROOF OF MAINTENANCE

- **Service and repair work must be carried out only by trained personnel.**
- When working on machines or molds in the area of the stone fabrication plant, the complete devices must be switched off for this purpose.
- Moving parts must be secured against accidental movement.
- Clean the mold thoroughly after each use with compressed air or high pressure washer.
- Use a wire brush to remove adhering concrete.
- **Use no water and no high-pressure cleaner to clean electrically heated plates.**
- **Use no acids or acidic cleaners.**
- After cleaning, preserve the mold with cleaning oil and forming oil.
- Check the mold after each use for damage.
- Check whether all screw connections are tight.
- Check welded points for fractures or cracks.

- Inform the maintenance department in case of damage.
- Make sure that defective molds are not used.

9. REMOVE AND DISPOSE

9.1 DISASSEMBLING THE MOLD

9.1.1 SAFETY

The mold is a component of a stone fabrication plant.

- Disassemble the mold in accordance with the operating instructions of the device manufacturer.
- To disassembling the mold out of the machine use only tools recommended by the machine/ device manufacturer.

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

Danger from materials and substances

- Forming oils can cause irritation.
- Observe the safety instructions of the manufacturer of the preservative used.
- Do not inhale the spray mist.
- Always wear protective gloves and goggles.

Danger from sharp edges

- Wear protective gloves during all works with the mold.

Danger from ejecting parts with compressed air

- When using the compressed air rods, concrete debris and other loose items may be launched from the mold.
- Always wear face protection and protective gloves.

Danger from ejecting parts with water

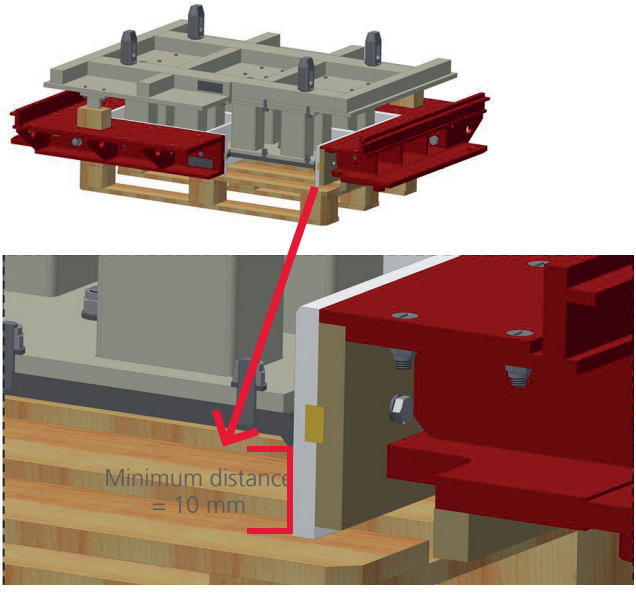
- When using the high-pressure cleaner, concrete debris and dirty water may be launched from the mold.
- Observe the safety instructions of the manufacturer of your high-pressure cleaner.
- Always wear face protection and protective gloves.

Danger by not adequately trained personnel

- You should work with the mold only when you have been instructed in the safe use and you have understood these user manual, as well as the operating instructions of the machine/ device manufacturer.
- Always observe the local safety regulations.

9.1.2 DESCRIPTION OF THE DISASSEMBLY WORK

- Make sure that the mold is immediately placed on a wooden pallet. [see also picture on page 23]
- To protect the chamfers insert a suitable spacer between the spacer bar on the applied load and the forming lower part. [see also picture on page 21]
- The spacer should be that thick so that the chamfers may stand at min. 10 mm above the pallet. [see also picture on page 31]
- Clean the mold thoroughly after each use with compressed air or high pressure washer.
- Use a wire brush to remove adhering concrete.
- **Use no water and no high-pressure cleaner to clean electrically heated plates.**
- **Use no acids or acidic cleaners.**
- After cleaning, preserve the mold with cleaning oil and forming oil.



Picture: The distance between chamfer and pallet should be at least 10mm.

9.1.3 SAFETY

Danger from falling heavy objects

- Observe the applicable operating and working instructions.
- Carry the protective equipment prescribed for your activity.
- Always wear safety shoes and head protection when working with the mold.
- Never walk under suspended loads.
- Transport the mold only if you have the necessary qualifications to manage the respective lifting gear.
- Make sure that the load capacity of the hoist is sufficient.

9.1.4 DESCRIPTION OF DISPOSAL OPERATIONS

- Please return the parts of the mold to the manufacturer or dispose the parts of the mold in accordance with local regulations.

10. MOLDS WITH HYDRAULICALLY OPERATED COMPONENTS

10.1 GENERAL PRINCIPLES

It is possible to produce bricks with lateral profiling due to hydraulically operated components in a mold.

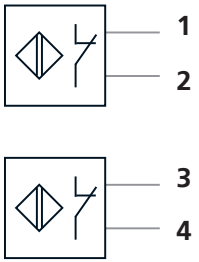
It is possible to influence the filling of a mold in certain areas due to targeted blocking of the base mix concrete using hydraulically operated mold walls. For example for sloped curbstones or targeted pre-profiling of curbstones with deep chamfer to achieve an even face mix layer.

10.1.1 SPECIFICATIONS

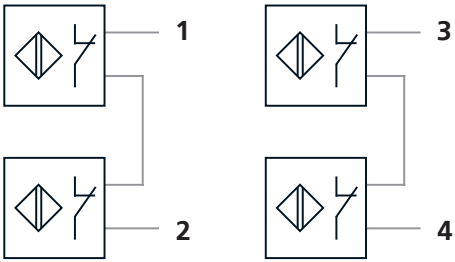
- The technical data depends on the function of the parts to be operated.
- The hydraulic components are designed for an operating pressure of maximum 200 bar.
- Molds with hydraulically operated parts have at least 2 hydraulic connections depending on function.
- Depending on function, there can be several potential free limit switches in a mold that are to be used by the controls for locking various machine functions.

Detailed wiring diagram for position indicator switch

variant 1

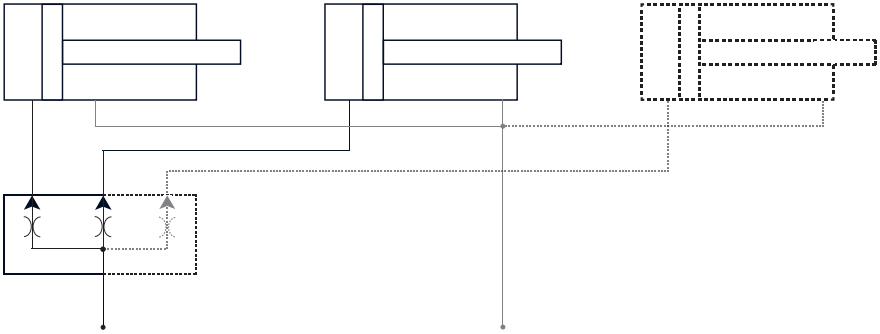


variant 2

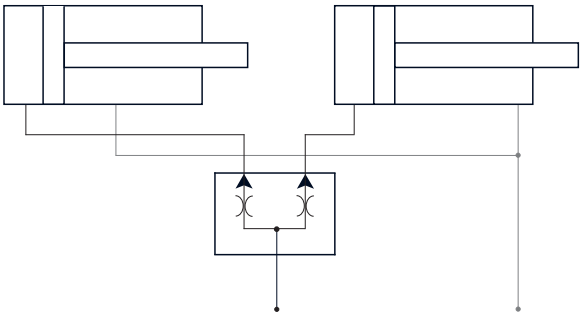


Detailed wiring diagram in different variant

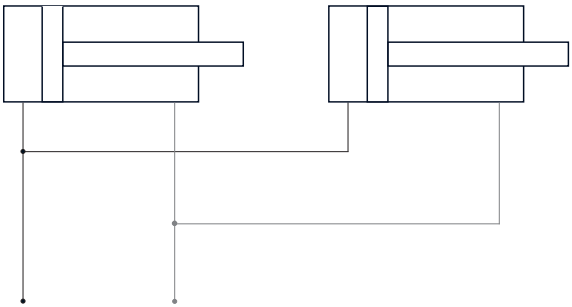
variant 1



variant 2



variant 3



10.2 INTERNAL TRANSPORT

10.2.1 SAFETY

- In any case, the regulations and provisions of the professional association and all provisions that apply at the respective operating site must be observed.
- Only suitable means of transportation and lifting gear approved for the respective load must be used.
- Transport the mold only if you have the qualification for driving the respective means of transport.
- Transport the mold on suitable transport pallets only.
- Secure the mold against shifting using suitable means. [see picture on page 21]

10.2.2 TRANSPORT

- In order to protect the chamfers of the shoes, a suitable spacer must be inserted on the tamper head and the mold bottom. The spacer must be big enough so that the chamfers of the shoes are approx. 10 mm above the transport pallet. [see picture on page 21]
- Make sure that the connecting cables for the limit switch are safeguarded against damaged.
- Lock the hydraulic connections with blind plugs to prevent leakage of hydraulic oil.

10.3 CONNECTING OF THE MOLD

10.3.1 SAFETY

- Observe all instructions and directions of the machine/ facility manufacturer during installation or removal of the mold.
- Only use tools recommended by the machine manufacturer.
- Observe all accident prevention regulations as well as applicable regulations and provisions at the respective operating site during all works.
- Check the connecting lines and plugs for the limit switches as well as the hydraulic connections for damage before every operation of the mold. Molds with damaged cables or damage to the hydraulic connections must not be activated.

10.3.2 CONNECTION REQUIREMENTS

- A mold with hydraulically operated components is manufactured for a distinct brick production facility and must only be used in this facility.
- If limit switches for certain functions are planned, then they must be incorporated into the logic of the machine controls in each and every case.
- The connection or disconnection of the mold must only be made when the controls are deactivated.
- Make sure during connection that crushing or over stretching of the cables or hydraulic connections during production is impossible.

Operation

- The hydraulic functions of the molds must only be operated if the mold is in the brick production facility and all safety-relevant requirements are met.
- Be advised that the machine function locks can be deactivated by the limits switches in part or altogether during setup mode. Therefore make sure that collision of rotating parts due to false positioning is made impossible.

10.4 CLEANING AND STORAGE

10.4.1 SAFETY

- Forming oils can cause irritations.
- Observe the manufacturer's safety information of the preservatives used.
- Do not inhale the spray mist.
- Concrete remains and other loose parts can be ejected from the mold due to the use of the compressed-air rod.
- Always wear protective gloves and safety goggles.
- Observe the safety information of the operating manual as well as the brick production facility operating manual during all works on the mold.

10.4.2 CLEANING

- Clean the mold after every production and before every production pause.
- Clean the molds in regular intervals during constant production.

- Also remove the concrete remains above the shoes; this significantly reduces the wear in the stone space.
- Use a compressed-air rod or high pressure cleaner for cleaning a mold.
- Do not use any acids or acidic cleaning agents.
- Remove stuck concrete remains with a wire brush.
- Preserve the mold with mold and cleaning oil.

10.4.3 STORAGE

- Clean and preserve the mold before every time you store it.
- Make sure that the cables for the limit switches are protected against damage.
- In order to protect the chamfers of the shoes, a suitable spacer must be inserted on the tamper head and the mold bottom. The spacer must be big enough so that the chamfers of the shoes are approx. 10 mm above the transport pallet.
- Store the mold in a room or roofed shelf protected against weather effects.

10.5 MAINTENANCE OF THE MOLD

10.5.1 SAFETY

- **Service and repair works must only be conducted by trained specialists.**
- The entire facilities must be deactivated for all works on machines and molds.
- Rotating parts must be secured against accidental movement.

10.5.2 MAINTENANCE IN GENERAL

- Check the mold for damage after every use.
- Check all screw connections for tight fit.
- Cables, plugs or hydraulic connecting components that are only slightly damaged must be replaced in any case.
- Inform the servicing department in the event of damage.
- Make sure that no damaged molds are used.

10.5.3 SERVICE ADDRESS

KOBRA FORMEN GmbH
Plohnbachstr. 1
08485 Lengenfeld/ Germany

11. MOLDS WITH HEATED COMPONENTS

11.1 GENERAL PRINCIPLES

11.1.1 ADVANTAGES IN CONCRETE BLOCK PRODUCTION

- Higher qualities of concrete blocks can be achieved with the mold equipment feature KOBRA »Hotshoe™«.
- The concrete block surface appears more smoothed and closed. Also in addition, the adhesion of concrete to the shoe [lift-offs] is reduced.
- The W/C value [water/ cement] can be increased.
- The desired effect of the surface improvement already occurs at temperatures of 35°C. In most cases, no improvements are achieved above 70°C.
- At high temperatures, burning-in of fine portions at the shoes can occur for some concrete additions. This is no flaw of the mold.
- Despite well-engineered technology, cable break can occur due to the partially extremely dynamic loads. These loads are different in every brick production facility and cannot be calculated beforehand. For this reason, we cannot assume liability for such damage on the heating elements or the wiring.

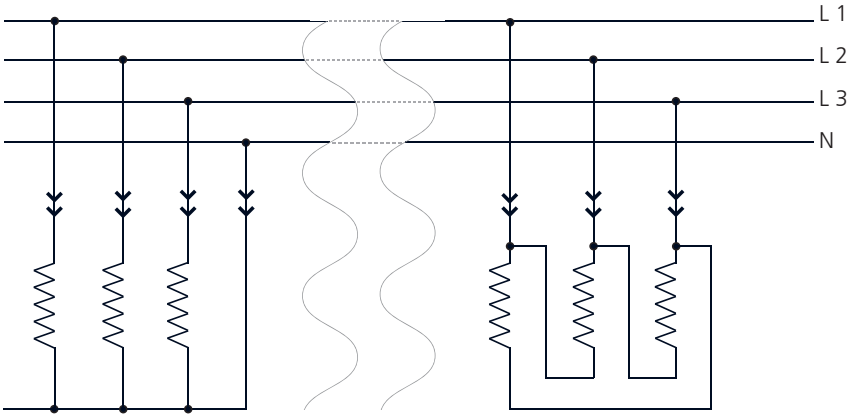
11.1.2 SPECIFICATION

- The technical data depends on the heated area.
- The heat output is depending on the version 1,5 to 5 W/cm².
- The operating voltage of the heating elements is 230 or 400 Volt depending on the power grid of the country concerned.
- The heating elements must be connected depending on the requirements of one of the following operating diagrams.

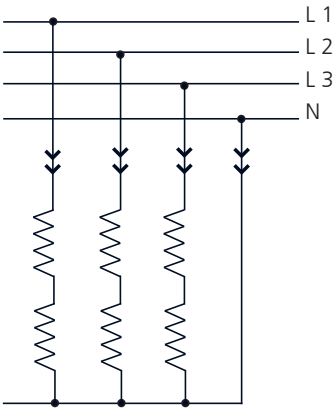
Detailed wiring diagram in different variant

variant 1

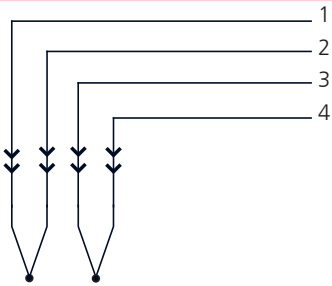
variant 2



variant 3



applies to variant 1 to 3



2x Temperatursensor/ temperature sensor

[kann bei Fremdsteuerung abweichen / may vary with external control]

11.2 INTERNAL TRANSPORT

11.2.1 SAFETY

- In any case, the regulations and provisions of the professional association and all provisions that apply at the respective operating site must be observed.
- Only suitable means of transportation and lifting gear approved for the respective load must be used.
- Transport the mold only if you have the qualification for driving the respective means of transport.
- Transport the mold on suitable transport pallets only.

10.2.2 TRANSPORT

- In order to protect the chamfers of the shoes, a suitable spacer must be inserted on the tamper head and the mold bottom. The spacer must be big enough so that the chamfers of the shoes are approx. 10 mm above the transport pallet. [see picture on page 21]
- Make sure that the cable protection is attached.

11.3 CONNECTING OF THE MOLD

11.3.1 SAFETY

- Observe all instructions and directions of the machine/ facility manufacturer during installation or removal of the mold.
- Only use tools recommended by the machine manufacturer.
- Observe all accident prevention regulations as well as applicable regulations and provisions at the respective operating site during all works.
- Check the connecting lines and plugs for damage before every operation of the mold. Molds with damaged cables or plugs must not be activated.
- The connection or disconnection of the mold must only be made when the controls are deactivated.
- Make sure during connection that crushing or over stretching the cable during production is impossible.

11.3.2 CONNECTION REQUIREMENTS

- The heated mold must only be operating at a power regulator suited for it [e.g. TR 36-3/4 of the Elektro Hermle Company].
- Operating the heating system without regulation can lead to overheating or melting of the heating elements.
- The following parts are located at the mold:
    - 1 connection for the temperature sensor [small 6-pin plug]
    - 1 or 2 power cables [large 4-pin plugs] depending on the area heated

11.3.3 HEATING AND OPERATION

- Activate the controls only after the connecting lines of the mold are completely connected.
- Heat the mold gradually to the desired temperature.
- To achieve even heating, the difference between actual and target temperature should not exceed 40°C.
- Make sure that the actual temperature does not exceed 120°C. Higher temperatures destroy the silicone heating elements.
- **Caution! – When operating the mold in manual or setup mode!** The control system is inactive here and it can cause overheating.

11.4 CLEANING AND STORAGE

11.4.1 SAFETY

- Mold oils can cause irritations.
- Observe the manufacturer's safety information of the preservatives used.
- Do not inhale the spray mist.
- Concrete remains and other loose parts can be ejected from the mold due to the use of the compressed-air rod.
- Always wear protective gloves and safety goggles.
- Observe the safety information of the operating manual as well as the brick production facility operating manual during all works on the mold.

11.4.2 CLEANING

- Clean the mold after every production and before every production pause.
- Clean the molds in regular intervals during constant production.
- Also remove the concrete remains above the shoes; this significantly reduces the wear in the cavity.
- Do not use water or a high pressure cleaner for cleaning heated mold parts.
- Do not use any acids or acidic cleaning agents.
- Clean the mold with a compressed-air rod.
- Remove stuck concrete remains with a wire brush.
- Preserve the mold with mold and cleaning oil.

10.4.3 STORAGE

- Clean and preserve the mold before every time you store it.
- Make sure that the cable protection is attached.
- In order to protect the chamfers of the shoes, a suitable spacer must be inserted on the tamper head and the mold bottom. The spacer must be big enough so that the chamfers of the shoes are approx. 10 mm above the transport pallet. [see picture on page 21]
- Store the mold in a room or roofed shelf protected against weather effects.

11.5 MAINTENANCE OF THE MOLD

11.5.1 SAFETY

- **Service and repair works must only be conducted by trained specialists.**
- The entire facilities must be deactivated for all works on machines and molds.
- Rotating parts must be secured against accidental movement.

11.5.2 MAINTENANCE IN GENERAL

- Check the mold for damage after every use.
- Check all screw connections for tight fit.
- Cables or plugs that are only slightly damaged must be replaced in any case.
- Inform the servicing department in the event of damage.
- Make sure that no damaged molds are used.

11.5.3 EXCHANGEABLE COMPONENTS

- The heating elements used are wear parts and can be exchanged by the KOBRA Formen GmbH service or by trained personnel on site.
- Replacement heating elements can be ordered at KOBRA Formen GmbH specifying the respective mold number.

11.5.4 SERVICE ADDRESS

KOBRA FORMEN GmbH
Plohnbachstr. 1
08485 Lengenfeld/ Germany

12. SPARE PARTS AND CONSUMABLES

All original removable parts of KOBRA FORMEN GmbH can be ordered through our distributors.

13. TEST REPORTS

Test and measurement protocols are provided on request.

14. SUPPLIER-DOCUMENTATION

14.1 DOCUMENTATION FOR HEATING CONTROL

Documentation for the control for heated mold parts is included with each heating control.